Infor LN Warehousing User Guide for Warehouses

Important Notices

Trademark Acknowledgements

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About this document

Objectives

The objectives of this book are to describe the purpose and the use of warehouses.

References

Use this guide as the primary reference for the setup and the use of warehouses. Use the current editions of these documents for information that is not covered in this guide:

- *User Guide for Warehousing Procedures*
- *User Guide for the Inbound Goods Flow U9788 US*
- *User Guide for the Outbound and Shipments Goods Flows U9794 US*
- *User Guide for Warehousing Inspections U9875 US*
- *User Guide for Warehousing Quarantine Handling U9876 US*
- *User Guide for Delivery Notes and Shipments U8982 US*
- *User Guide for Cross-docking U8939 US*
- *User Guide for Direct Material Supply U8945 US*

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This document is assembled from online Help topics.

Text in italics followed by a page number represents a hyperlink to another section in this document.

Underlined terms indicate a link to a glossary definition. If you view this document online, clicking the underlined term takes you to the glossary definition at the end of this document.

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Chapter 1
Introduction

1

Using warehouses

Warehouses are places where goods are stored.

You can optionally divide a warehouse in locations or zones.

Purchased and produced goods, but also goods from other origins, can be stored in warehouses. These goods are retrieved from the warehouse later on for production, sales, service, or transport to another warehouse.

To define warehouses

Warehouses are initially defined in the Warehouses (whwmd2500m000) session. Here you can define addresses for each warehouse and data that relates to its type.

In this session you can, for example, also define:

- Whether a warehouse is location-controlled.
- The default location data.
- Lead times:
  - inbound lead time
  - outbound lead time
  - cross-dock lead time
- The use of handling units
- Settings for:
  - cross-docking
  - direct material supply

Warehouses are used throughout all the modules of Warehousing.

To register item master data for each warehouse

To get information about item data for each warehouse, you can view or report the item data by warehouse in the Item Data by Warehouse (whwmd2510m000) or the Print Warehouse - Items Inventory (whwmd2410m000) session.

The information that you can view or change in these sessions includes, for example, the following:

- Safety stock
- Reorder point
- Forecast method
- Pricing information

Item data (by warehouse) is used to do the following:

- Calculate the demand forecast
- Advise purchase and production orders
- Maintain purchase and production orders
- Maintain inventory transactions

Chapter 2
Defining Warehouses

2

Warehouse Type

- **Normal**
  A warehouse that stores normal inventory.
- **Service**
  A warehouse that stores the required inventory for a service area.
- **Service Customer Owned**
  A warehouse that stores the required inventory for a service area. All of the inventory stored is customer owned.
- **Service Reject**
  A warehouse used by Service that stores defective items received from customers.
- **Shop Floor**
  A warehouse that stores intermediate inventory in order to supply work cells, work centers, or line stations. A shop floor warehouse is linked to an individual work cell, one or more work centers, or one or more line stations. For this purpose, the shop floor warehouse is linked to the appropriate value of the **Used at** field in the Warehouses (whwmd2500m000) session.
- **Consignment (Not Owned)**
  A warehouse that stores consigned materials that have been delivered but are not yet company owned.
- **Consignment (Owned)**
  A warehouse that stores consigned materials that have been delivered and have either been used or have been acquired by the company for manufacturing a specific order.
- **Project**
  A warehouse that only stores materials that belong to a specific project.
- **Financial**
  financial warehouse

Shop floor warehouse - work cell

If a shop floor warehouse is used for an individual work cell, various warehousing settings are not required. For this purpose, you must select the **Work Cell** option in the **Used at** field of the Warehouses (whwmd2500m000) session for this warehouse.

Consequently, various settings are preset and unavailable in these sessions:

- Warehouses (whwmd2500m000)
- Item Data by Warehouse (whwmd2510m000)

Warehouses (whwmd2500m000)

- Lead times are unavailable.
- The **Business Partner** field is unavailable and the **Inventory Management** check box is selected and unavailable, because inventory management is not handled by an external party.
- The **Usage at Warehouse Transfer** field is unavailable and set to **Always**.
- The **External Site** field is set to **No**, because the shop floor warehouse belongs to the current company.
- The buy-from, ship-from, ship-to, and sold-to business partner fields are not applicable.
- The **WMS Controlled** check box is cleared and unavailable.
- The fields in the **Labels** tab are unavailable, because the inventory is used within the work cell and therefore labels are not required.
- Only these supply systems are available:
  - **Time-Phased Order Point**
  - **KANBAN**

    For either supply system, you must specify a supply-from warehouse. This warehouse must be located in the current company.

Note

For shop floor warehouses in general, locations and elaborate shipment procedures are not required. Therefore:

- The locations fields are unavailable.
- In the **Shipments** tab, these settings are preset and unavailable:
  - The **Generate Shipments** field is set to **Per Exact Planned Delivery Date/Time**.
  - The **Time Interval** field is set to 0 (zero) days.
  - The **Add Orders Based On** field is set to **Time of Picking**.
  - The **Update Shipping Material Account during** field is set to **Not Applicable**.
  - Delivery notes and packing slips are not applicable.

Item Data by Warehouse (whwmd2510m000)

- Storage zones are not used, therefore the **Storage Zone** field is unavailable.
- The **Issue Priority** field is set to **Owned Inventory First**.
- For the **Usage at Warehouse Transfer** field, the **Always** and **No** options are available. This is because transfers are only allowed within the same company, planning cluster, or enterprise unit.
- The **Use Item Ordering Data** check box is cleared.
- Lead times are unavailable.
- Service levels are not applicable.
- For the **Order Method** field, the **Lot for Lot** and **Fixed Order Quantity** options are available.
- Economic order quantities are not applicable.
- Only these supply systems are available:
  - **Time-Phased Order Point**
  - **KANBAN**

    For either supply system, you must specify a supply-from warehouse. This warehouse must be located in the current company.
- The reorder point is not applicable, because this is not used for the allowed supply systems **Time-Phased Order Point** and **KANBAN**.
- The **Assembly Kit** and **Trigger-from Station** fields are unavailable, because these are only used for supply system **Order Controlled/SILS** and **Order Controlled/Single**.

Chapter 3
Locations

3

Using locations

Locations are the parts of the warehouse where items are actually stored. Locations can optionally be assigned directly to an item or item group, or by means of storage conditions.

Several types of location exist:

- receiving location
- inspection location
- pick location
- bulk location
- staging location
- reject location

Locations are used for the following purposes:

- Control the inbound movement of items
- Control the outbound movement of items
- Enter inventory transactions
- Create cycle count orders
- Register items at locations

You can specify locations in the Warehouse - Locations (whwmd3500m000) session.

Note

Defining locations for a warehouse is optional.

Making warehouses location controlled

As the goods volumes moving in and out of the warehouse increase, the need for more advanced warehouse management in the form of location control may arise.

You can enable location control for a warehouse without inventory, that is, a newly defined warehouse, or a warehouse that has been defined but not yet been put into use, or for a warehouse for which inventory is present.

To make a warehouse without inventory location controlled, in the Warehouses (whwmd2500m000) session, select the **Locations** check box.

This topic describes enabling location control for warehouses with inventory. In a nutshell, to make a warehouse with inventory location controlled, in the Change Location System (whwmd3205m000) session, you copy the stockpoint and inventory structure information of the items of the warehouse to the Assign Locations (whwmd3105m000) session. In this session, you assign the items to locations that you define in this session or define in advance in the Warehouse - Locations (whwmd3500m000) session or the Fixed Locations (whwmd3502m000) session.

In the Assign Locations (whwmd3105m000) session, after assigning the locations, you copy the adjusted information back to the inventory structure and stockpoint sessions by actualizing the locations assigned to the inventory. While actualizing the information, LN adjusts the warehousing procedures.

Prerequisites

Before copying the item information to the Assign Locations (whwmd3105m000) session, there are a few prerequisites to take into account.

The inventory data that you copy to the Assign Locations (whwmd3105m000) session must match the real inventory as closely as possible to limit inventory discrepancies after the process, when the inventory data are copied back to the warehouse.

To limit inventory discrepancies, and before copying the inventory data, complete these steps:

1. Verify that there are no unconfirmed receipts.

   Check the line status in the Inbound Line Status Overview (whinh2119m000) session. Only statuses **Open** en **Put Away** are valid.

2. Verify that all shipment lines are confirmed or closed.

   Check the line status in the Outbound Line Status Overview (whinh2129m000) session. Only statuses **Open** en **Shipped** are valid.

3. Verify that all inventory inspections are processed.
4. Verify that all outbound advice is removed.
5. Verify that all cycle counting or adjustment orders are processed.
6. Repeat the previous steps for partial receipts and partial shipments.
7. Block the warehouse for inbound and outbound movements.

To do so, in the Warehouses (whwmd2500m000) session, select the **Blocked for Inbound** and **Blocked for Outbound** check boxes.

Because there may be inventory movements just before you block the warehouse, you cannot exclude the possibility of the occurrence of inventory discrepancies.

Procedure

To make a warehouse location controlled, complete these steps:

1. Start the Change Location System (whwmd3205m000) session.
2. Select the warehouse to be made location controlled.
3. Select the items to be made location controlled or copied to the Assign Locations (whwmd3105m000) session.
4. If required, enter a receipt, inspection, reject, or staging location in the location fields.
5. To perform a trial run and print a report before actually copying the data or making the items location controlled, select the **Print Report** check box and in the **Update Mode** group box, select **Simulate**.

   To actually copy the items to the Assign Locations (whwmd3105m000) session or make items location controlled, select **Update**. Note that at this point, the prerequisites must be met.
6. Click **Get Stockpoints** to launch the trial run or to actually copy the items to the Assign Locations (whwmd3105m000) session.
7. Start the Assign Locations (whwmd3105m000) session.
8. Look up the warehouse for which you copied the item data in the previous steps.
9. For each item, in the **New Location** field, enter a new location as required. The location entered in this field overwrites the location present in the **Proposed Location** field when you actualize the location and inventory information. Actualizing the information is described in the final step of this procedure.

   You cannot enter fixed locations in the **New Location** field. You must create fixed locations in advance in the Fixed Locations (whwmd3502m000) session. When you copy the item data to the Assign Locations (whwmd3105m000) session as described in the previous steps, the fixed locations are displayed in the **Proposed Location** field.
10. If you want to divide the inventory of a particular item over more than one location, from the appropriate menu, select Split and in the new line that appears, enter a location and the quantity to be stored in the location.

Making items location controlled

The items that you copy to the Assign Locations (whwmd3105m000) session must be location controlled. This is because you cannot assign non-location controlled items to a location. If you store a non-location controlled item in a location controlled warehouse, the items are stored without reference to a bulk or pick location, thus making the location system of the warehouse ineffective.

Sometimes, items stored in a non-location controlled warehouse, are location controlled. This is because these items are also stored in a location controlled warehouse. You can copy these items to the Assign Locations (whwmd3105m000) session without making them location controlled first.

Note

Items contained in not-owned handling units cannot be made location controlled. To make such items location controlled, remove the items from the handling unit structure first.

Using dock locations

When a warehouse uses locations, dock locations can be used.

In LN, two types of dock locations exist:

- **Staging**
  A staging location, or staging lane, is an area near a shipping dock where material is gathered and consolidated before shipment.
- **Receiving**
  A receiving dock location is an area near a receiving dock where received material is placed before being put away. With the help of inbound advice, the items from this location are assigned to inventory locations.

If a warehouse uses locations, at least one receiving location and one staging location must be set up.

Dock locations are created in the Warehouse - Dock Locations (whwmd2120m000) session. The first receiving dock location and inspection location are created in the Warehouses (whwmd2500m000) session.

Dock locations - search criteria

A warehouse can have multiple docks for staging and composing/structuring loads. Goods are loaded in the trucks from these docks. LN automatically selects and proposes a specific loading dock when goods are picked from the warehouse locations. The dock selection process is based on a range of possible selection criteria, such as item, storage zone, (ship-to) business partner, carrier, route, and so on.

LN selects the dock location based on the following criteria:

Warehousing criteria for dock selection

- **Carrier/LSP**
- **Route**
- **Delivery Terms**
- **Package Definition**

- **Rush Order**
- **Ship-to Code** (for outbound dock locations)
- **Ship-from Code** (for inbound dock locations)

Note

You can use the Freight Management related criteria for dock selection only if the **Freight Management (FM)** check box is selected in the Implemented Software Components (tccom0500m000) session.

LN selects the dock location based on the following criteria:

Freight criteria for dock selection

- **Standard Route**
- **Route Plan**
- **Transport Means Group**
- **Transport type**

Note

- If dock locations are not defined, LN selects the default receiving or staging location defined in the Warehouses (whwmd2500m000) session.
- If a receiving or staging location is blocked, that location is not taken into account.
- The search criteria defined for dock selection apply to both the **Receiving** and **Staging** dock locations.

You can define the priorities based on which LN selects a dock location. The lowest number is given the highest priority and vice-versa. The highest priority is number 10, followed by 20, 30, and so on in decreasing order. LN selects a dock location if the search criteria matches the information of the shipment staged on that dock.

In case of conflicting search criteria, the priority set determines which dock location is advised.

Example

- If a shipment of a specific item is to be staged on dock 3, but the route linked to the shipment is attached to dock 5.
- If the combination of carrier and route on a shipment results in a dock which is different than the dock linked to a business partner and the delivery terms on that same shipment.

If the **Use Only Unoccupied Dock Locations** check box is selected in the Warehouses (whwmd2500m000) session, LN allocates a new dock location if the first selected dock location is occupied.

Note

To ensure that LN allocates only vacant dock location, you must clear the **Location Occupied** check box in the Warehouse - Locations (whwmd3500m000) session.

Warehouse location capacity

Depending on the setup in the Warehouse - Location - Capacity (whwmd3101s000) session, a location's available capacity is based on the floor space, weight and/or height specified for the location minus the total floor space, weight and/or height of the items stored in the locations.

Receipts into and issues from the location affect the location's capacity. Inbound advice that exceed the available capacity are not allowed if the **Block** check box is selected. A warning is displayed if you manually create inbound advice that exceeds the percentage specified in the **Warning at** field.

Handling units

If handling units are used for which packaging items have been defined, the dimensions of the packaging items of the handling units are used to calculate the available capacities of the locations as follows:

- **Volume**
  The **Internal** packaging items of the top level handling units determine the location space occupied by the handling unit. If the handling unit's packaging item is **External**, the volume of the packaging item plus the volume of the items stacked on top of the packaging item determine the location space occupied by the handling unit.

  If the handling unit structure consists of an **External** packaging item and various **Internal** packaging items, the added volumes of the internal and external packaging items determine the location space occupied by the top level handling unit of the structure. For example, in case the external packaging item is a pallet and the internal packaging items are boxes.
- **Floor Space**
  The floor space of the packaging items of the top level handling units determine the location space occupied by the handling unit.
- **Weight**
  The total weight of the items and the packaging items of the handling unit determine how much of the location's weight capacity is taken up by the handling unit.

Note

If handling units are used without packaging items or auxiliary packaging items, the handling units do not affect the location capacity.

Recalculation of location capacity - handling units

LN recalculates the location capacity if you:

- Close handling units stored in the location.
- Manually add packaging items to handling units stored in the location.
- Use the **Pack** option in the Compose Handling Units (whwmd5130m100) to add packaging items to handling units stored in the location.
- Manually adjust the dimensions of handling units stored in a location.

- Adjust the parent - child relations of a handling unit structure that contains packaging items. For example, if you take a few handling units of type Box from a handling unit of type Pallet and remove the Boxes from the location.

Using storage conditions

You can use storage conditions to prevent the storage of items at unsuitable locations.

You can link a storage condition to an item (or item group), and a location (or an entire warehouse). If the storage condition of the location (warehouse) and the item (or item group) correspond, items (of the item group) can be stored in the location (or warehouse).

You can use storage conditions to do the following:

- Register items at locations.
- Generate inbound advice.

To print storage conditions

This topic describes the master data setup required to print the storage conditions on inbound and outbound documents.

Note

Only the storage conditions that are enabled in the Warehouse Master Data Parameters (whwmd0100s000) session are printed. You can define storage conditions on the following multiple levels:

- **Item**
- **Item Group**
- **Location**
- **Warehouse**

During the inbound process, LN searches for the applicable storage conditions in the following order:

1. Item storage conditions
2. Item group storage conditions
3. Location storage conditions
4. Warehouse storage conditions

LN compares the item/item group storage conditions with the warehouse/location storage conditions and vice versa to determine if an item can be stored in the location.

Print Storage Conditions - Inbound

You must select the following parameters in the Inventory Handling Parameters (whinh0100m000) session to print the storage conditions on the inbound advice documents and the storage list:

- **Item/Item Group Storage Conditions**
- **Warehouse/Location Storage Conditions**

Note

Both the check boxes are cleared by default.

Print Storage Conditions - Outbound

You must select the following parameters in the Inventory Handling Parameters (whinh0100m000) session to print the storage conditions on the outbound advice documents and the picking list:

- **Item/Item Group Storage Conditions**
- **Warehouse/Location Storage Conditions**

Note

Both the check boxes are clear by default.

You can print the inbound/outbound documents from the following sessions:

- Print Inbound Advice (whinh3425m000)
- Generate Storage List (whinh3415m000)
- Print Outbound Advice (whinh4460m000)
- Generate Picking List (whinh4415m000)
- Process Outbound Advice (whinh4200m000)
- Generate Outbound Advice (whinh4201m000)

Chapter 4
Replenishment Matrices

4

To use replenishment matrices

Replenishment matrices are used to automatically control the quantity of items on pick locations. Based on a replenishment matrix, you can automatically generate, and also directly process, warehouse orders to replenish pick locations. Replenishment matrices are defined by linking pick locations to bulk locations.

Prerequisites

To be able to setup a replenishment matrix, you must:

1. Create a location controlled warehouse. For more information, refer to *Using warehouses (p. 7)*. In the Warehouses (whwmd2500m000) session, you can indicate whether a warehouse is location controlled.
2. Optionally create zones. For more information, refer to Using zones.
3. Create locations. For more information, refer to *Using locations (p. 13)*.
4. Create a location-controlled item. For more information, refer to Setting up the item data. In the Items - Warehousing (whwmd4500m000) session, you can indicate whether an item is location controlled.
5. Specify and activate warehouse-related item data in the Item Data by Warehouse (whwmd2510m000) session.
6. Specify a fixed pick location for the item in the Fixed Locations (whwmd3502m000) session, because you can only replenish fixed pick locations. To be able to replenish a fixed pick location, you must also specify the **Minimum Inventory** and **Minimum Replenishment Quantity** in the Fixed Locations (whwmd3502m000) session.

Setup

Use the Replenishment Location Matrix (whwmd3504m000) session to define the replenishment matrix. You can specify the following replenishment relation types:

- A replenishment location that replenishes a destination location.
- A replenishment location that replenishes a destination zone.
- A replenishment zone that replenishes a destination location.
- A replenishment zone that replenishes a destination zone.

The following restrictions apply to the zones and locations you can use to define a replenishment matrix:

- A replenishment location must be of the **Bulk** type.
- A replenishment zone must at least contain one location of the **Bulk** type.
- A destination location must be of the **Pick** type.
- A destination zone must at least contain one location of the **Pick** type.

You can specify specific and general replenishment relations. A replenishment relation is:

- **Specific** if the item is specified.
- **General** if no item is specified.

You can specify more than one replenishment relation for one specific destination location or destination zone. As a result, the destination location or destination zone can be replenished from several replenishment locations or replenishment zones. In this case, LN determines the sequence of location(s) from which replenishment must take place, based on the **Priority** that is specified for each replenishment relation in the Replenishment Location Matrix (whwmd3504m000) session.

Replenishment

Use the Print Replenishment List (whwmd3405m000) session to start the replenishment of pick locations. With this session, you can:

- Only print the replenishment list if the **Directly Create Warehousing Orders** check box is cleared. On the replenishment list, you can view the replenishment advice that consist of the locations to be replenished, the locations to replenish from, the item to be replenished, and the replenishment quantity.
- Print the replenishment list, and also directly generate warehouse orders of the **Transfer (Manual)** origin, that enable the actual replenishment. To do so, select the **Directly Create Warehousing Orders** check box, and specify the **Warehousing Order Type** and **Warehousing Order Series**.
- Print the replenishment list, directly create warehouse orders, and also directly process the created warehouse orders to start the actual replenishment directly. To do so, select the **Directly Process Created Orders** check box.

If, in the Print Replenishment List (whwmd3405m000) session's selection range, you specify:

- A destination zone to be replenished, LN checks all the zone's pick locations that are fixed for a certain item on whether these locations must be replenished.

- A destination location to be replenished, and the location is a pick location that is fixed for a certain item, LN checks whether this location must be replenished.
- An item to be replenished, LN checks for all fixed pick locations for this item whether these locations must be replenished.

A fixed pick location must be replenished if a shortage exists for the item. A shortage exists if the item's total **Inventory on Hand** in that location is less than the **Minimum Inventory**. You can view:

- The total item's **Inventory on Hand** at the bottom of the Stock Point Inventory (whinr1540m000) session.
- The **Minimum Inventory** in the Fixed Locations (whwmd3502m000) session.

LN calculates the items shortage at the fixed pick location as follows:

```
shortage = minimum inventory - inventory on hand (nnventory unit)
```

Note

If the **Use Economic Stock for Replenishment Advice** check box on the Print Replenishment List (whwmd3405m000) session is selected, LN uses the economic stock, instead of the **Inventory on Hand**, to determine the quantity to replenish.

Based on the calculated shortage, LN determines the quantity to replenish, taking into account:

- The **Minimum Replenishment Quantity** that is specified in the Fixed Locations (whwmd3502m000) session. LN cannot replenish less than the **Minimum Replenishment Quantity**.
- The location's capacity that is specified in the Warehouse - Location - Capacity (whwmd3101s000) session. LN cannot replenish more than what fits on the location.

If the quantity to be replenished to a pick location is determined, LN starts searching for a bulk location to replenish from. To determine the bulk location(s) from which the pick location must be replenished:

- LN first searches for **Specific** replenishment relations for the pick location and item. If such a replenishment relation exists and inventory is available for the item on the bulk location that is specified for the replenishment relation, LN creates a replenishment advice to replenish from that bulk location.
- If for the pick location and item a **Specific** replenishment relation exists but not enough inventory is available on the bulk location, or if no **Specific** replenishment relation exists for the pick location and item, LN searches for a **General** replenishment relation for the pick location. If such a replenishment relation exists, and inventory is available for the item on the bulk location that is specified for the replenishment relation, LN creates a replenishment advice to replenish from that bulk location.
- If a replenishment relation exists but not enough inventory is available to replenish, or if no replenishment relation exists, and the **Also Create Orders for Undefined Replenishment Location** check box in the Print Replenishment List (whwmd3405m000) session is selected, LN creates a replenishment advice without the location to replenish from for, respectively, the remaining quantity or the replenishment quantity.

Important!

If more than one **Specific** replenishment relation exist, or if more than one **General** replenishment relation exist, LN takes into account the replenishment relations' priorities to determine the replenishment sequence of the bulk locations. If two replenishment relations exist with the same priority, LN determines the replenishment sequence of the bulk locations, based on the item's **Outbound Method** that is specified in the Item - Warehousing (whwmd4600m000) session.

Example

Warehouse WH1 has, among other locations:

- A pick location: Pick1.
- Four bulk locations: Bulk1, Bulk2, Bulk3, and Bulk4.

Item ABC is location controlled and the item's outbound method is **FIFO**.

Location Pick1 is the fixed pick location for item ABC, for which the following settings apply:

- **Minimum Inventory** = 50.
- **Minimum Replenishment Quantity** = 25.

The following active replenishment relations exist for warehouse WH1 and location Pick1:

Priority	Replenishment Location	Item
3	Bulk1	ABC
1	Bulk2	ABC
3	Bulk3	ABC
2	Bulk4	

The following stock point inventory is available for item ABC:

Ship-from Location	Inventory Date	Inventory on Hand
Pick1	01-08-2002	30
Bulk1	01-15-2002	7
Bulk2	01-18-2002	10
Bulk3	01-25-2002	5
Bulk4	01-22-2002	5

A replenishment list is printed with the Print Replenishment List (whwmd3405m000) session with the following settings:

- Warehouse: WH1.
- Destination location: Pick1
- **Replenishment Relation Type**: **Both**.
- **Use Economic Stock for Replenishment Advice** check box is cleared.

LN calculates the item ABC's shortage at location Pick1 as follows:

```
shortage = minimum inventory - inventory on hand (inventory unit) = 50 - 30
= 20.
```

Because the shortage (20) is less than the **Minimum Replenishment Quantity** (25), the quantity to be replenished is 25.

As a result, the printed replenishment list contains the following replenishment advice (note the sequence):

Advised Quantity	Replenishment Location
10	Bulk2
7	Bulk1
5	Bulk3
3	Bulk4

LN advises first ten ABC from Bulk2, because Bulk2 has the highest priority (1). Then, LN advises seven ABC from Bulk1, because LN first searches for **Specific** replenishment relations. As a result, LN first

advises ABC from Bulk1 and Bulk3, and not from Bulk4, although Bulk4 has a higher priority. However Bulk1 and Bulk3 have the same priority, LN first advises ABC from Bulk1 compared to Bulk3, because Bulk1's stockpoint inventory date is before that of Bulk3.

Chapter 5
Negative Inventory

5

Negative inventory

A warehouse has negative inventory for an item if the issued quantity is larger than the quantity in inventory. Consequently, the inventory levels of the item are below zero. Allowing negative inventory ensures that the logistic processes are not interrupted by (administrative) shortages detected by LN. You can enable negative inventory for one or more items across all warehouses, or for items by warehouse. You can allow unlimited negative inventory or allow negative inventory up to the on-order quantity to be received.

Example

A sales order for 10 pcs is created. The current inventory is 0, but an open purchase order for 5 pcs is present.

If unlimited negative inventory is allowed, and outbound advice for 10 pcs is created, this results in a negative inventory of 10 after shipping. After the purchase order is received, the inventory level is increased to - 5.

If negative inventory is not allowed beyond the expected on-order quantity, the maximum outbound advice quantity allowed is 5 pcs.

If enabled, LN registers negative inventory or financial negative inventory consumptions in these sessions:

- Item - Warehouse - Negative Inventory (whwmd2555m000)
- Negative Inventory Consumptions (whina1520m000)
- Negative Consigned Consumptions (whwmd2552m000)
- Negative Customer Owned Consumptions (whwmd2552m100)

If inventory on order is received in the warehouse, that is, after the receipt is confirmed in the Warehouse Receipt (whinh3512m000) session, the received quantity is subtracted from the negative inventory quantity. If the received quantity is equal to or more than the negative inventory quantity, LN deletes the negative inventory record and the financial negative inventory consumption record.

Negative inventory not allowed

Negative inventory is not allowed for:

- Items of types other than **Purchased**, **Manufactured**, **Product**, or **Generic**.
- Low volume serialized items

Lot items

When negative inventory is issued, LN creates lot tracking records without an order origin. These records are the first to be updated when lot receipts are created.

For low volume lots, you can only generate negative outbound advice if:

- The lot is specified as a specific lot in the **Lot** field on the outbound order line.
- The **Create Outbound Advice Despite Inventory Shortage** check box is selected in the Generate Outbound Advice (whinh4201m000) session or the Process Outbound Advice (whinh4200m000) session.

Note

If these conditions do not apply, you can still manually create negative outbound advice for low volume lots in the Outbound Advice (whinh4525m000) session.

Inventory valuation

An item's inventory valuation method cannot be identified before the receipt of the item. Therefore, all negative inventory transactions are valued against **Standard Cost**.

Backflushing

In case of backflushing, LN can also generate negative inventory records. LN generates negative inventory for an outbound order line for which backflushing is applicable if, in addition to the above mentioned conditions, all of the following applies:

- The item is delivered but the receipt is not yet registered.
- The item is picked from the warehouse based on a backflush order.
- The orders or operations are reported completed in Job Shop Control.

Integrations with Manufacturing and Order Management

To determine the **Quantity to Deliver** in Manufacturing and the available stock in Order Management, LN checks the settings of the **Allow Negative Inventory** and **Create Outbound Advice Despite Inventory Shortage** fields in the Item Data by Warehouse (whwmd2510m000) session.

Setting up negative inventory

Step 1: Activate the negative inventory concept

In the Inventory Handling Parameters (whinh0100m000) session, select the **Negative Inventory** check box.

Step 2: Default values for item types and item groups

Specify the required value in the **Allow Negative Inventory** field and select or clear the **Create Outbound Advice Despite Inventory Shortage** check box in the Items - Warehousing Defaults (whwmd4501m000) session.

Step 3: Default values for items

In the Items - Warehousing (whwmd4500m000) session, specify the required value in the **Allow Negative Inventory** field and select or clear the **Create Outbound Advice Despite Inventory Shortage** check box.

Step 4: Default values for items by warehouse

In the Item Data by Warehouse (whwmd2510m000) session, specify the required value in the **Allow Negative Inventory** field and select or clear the **Create Outbound Advice Despite Inventory Shortage** check box.

Step 5: Allow or block outbound advice for negative inventory

To allow or block the generation of outbound advice for negative inventory, select or clear the **Create Outbound Advice Despite Inventory Shortage** check box in the Process Outbound Advice (whinh4200m000) session or the Generate Outbound Advice (whinh4201m000) session.

Clearing the **Negative Inventory** check box when negative inventory is present

If you clear the **Negative Inventory** check box in the Inventory Handling Parameters (whinh0100m000) session when negative inventory is still present:

- New outbound advice for negative inventory cannot be created.
- The negative inventory records remain and are updated with received inventory. The application removes these records when the received inventory equals or exceeds the negative inventory.
- The negative inventory settings in the Items - Warehousing (whwmd4500m000) and Item Data by Warehouse (whwmd2510m000) are not changed.

Note

- If the **Create Outbound Advice Despite Inventory Shortage** check box is cleared, you can still manually create outbound advice using the Outbound Advice (whinh4525m000) session in case of inventory shortage.
- If the value of the **Allow Negative Inventory** field is **Yes** or **If on Order** and the **Create Outbound Advice Despite Inventory Shortage** check box is selected in these sessions, but the **Negative Inventory** check box is cleared in the Inventory Handling Parameters (whinh0100m000) session, no negative inventory is created.

Chapter 6
Bill of Enterprise

6

Using the bill of enterprise

The bill of enterprise specifies the search structure for warehouses by company. The search structure is based on the priorities assigned to the warehouses.

The priority range is [1-999]; 1 is the highest, 999 the lowest priority. Company data is defined in the Implemented Software Components (tccom0500m000) session. The warehouse data of the selected company is defined in the Warehouses (tcmcs0103s000) session.

On the basis of the bill of enterprise you can generate reports and displays of standard item inventories in the Print Companies and Warehouses Inventory (whwmd2440m000) session and the Item - Companies and Warehouses Inventory (whwmd2540m000) session respectively.

Appendix A
Glossary

A

appropriate menu

Commands are distributed across the **Views**, **References**, and **Actions** menus, or displayed as buttons. In previous LN and Web UI releases, these commands are located in the *Specific* menu.

backflushing

The automatic issue of materials from inventory, or accounting for the hours spent manufacturing an item, based on theoretical usage and the quantity of the item reported as complete.

bill of enterprise

The search structure by company for warehouses based on the numeric priorities assigned to the warehouses. 1 is the highest priority, and 999 the lowest.

bulk location

The location used mainly for large inbound quantities and/or containers and to indicate from which pick locations can be replenished.

See: pick location

company

A working environment in which you can carry out logistic or financial transactions. All the transaction data is stored in the company's database.

Depending on the type of data that the company controls, the company is:

- A logistic company.
- A financial company.
- A logistic and a financial company.

In a multicompany structure, some of the database tables can be unique for the company and the company can share other database tables with other companies.

consigned

A type of ownership behavior pertaining to goods in inventory or on order.

If you are a customer, consigned goods are goods delivered by the supplier that you do not own and for which you have not paid. You become the owner, and payment is due, when you use or sell the goods, or after a given number of days after you receive the goods.

If you are a supplier, consigned goods are goods that you delivered to your customer, but the customer will not take ownership or pay until he uses or sells the goods, or until a given period of time after receipt of the goods has passed.

The period of time between the receipt of the goods and the date on which the customer becomes the owner, and payment is due, is laid down in the contract drawn up between the supplier and the customer.

See also: ownership

Synonym: Pay on Use

cross-docking

The process by which inbound goods are immediately taken from the receipt location to the staging location for issue. For example, this process is used to fulfill an existing sales order for which no inventory is available.

LN distinguishes the following three types of cross-docking:

- **Static**
  To initiate this type of cross-docking, you must generate a purchase order from a sales order in Sales.
- **Dynamic**
  This type of cross-docking, available in Warehousing, can be:
  - Based on inventory shortages.
  - Defined explicitly during receipt of goods.
  - Created on an ad hoc basis.
- **Direct Material Supply**
  You can use this type of cross-docking, available in Warehousing, to meet demand in a cluster of warehouses, and is based on:
  - Receipts
  - Inventory on hand

Note

You can maintain cross-dock orders that originate from Sales in the same way as cross-dock orders created in Warehousing, with the exception of the sales order/purchase order link, which you cannot change.

See: direct material supply

cross-dock lead time

The time interval, defined in hours or days, between receiving the goods on the receiving location until the moment the goods leave the warehouse from the staging location. It includes the normal waiting times on the receiving location and/or staging location, and inspection time.

Note

You can define cross-dock lead times for warehouses and/or item-warehouse combinations.

customer owned

A type of ownership behavior pertaining to goods in inventory or on order. Customer owned goods are goods whose ownership will not change during any of the inbound or outbound warehousing processes.

For example, a customer sent you some components that you, as a subcontractor, will use to manufacture a product for this customer. The customer owns the components while they are stored in your warehouse and throughout all the logistic and production processes involved in manufacturing and delivering the product to the customer.

See also: ownership

cycle count order

An order generated by LN to count the inventory by stock point at a particular frequency and to subsequently register the counted quantities. A cycle count order consists of an order number and a sequence number indicating the number of counts performed on this order. As a result of the count action, you can adjust the inventory.

direct material supply

A supply method in which (pending) receipts and available inventory on hand are used to meet high-priority demand within a user-specific cluster of warehouses. This supply method can be run either automatically, interactively, or manually, using the Direct Material Supply Distribution (whinh6130m000) session.

Abbreviation: DMS

See: cross-docking, warehouse supply structure

DMS

See: *direct material supply (p. 35)*

economic stock

The inventory that is available to be sold.

enterprise unit

A financially independent part of your organization that consists of entities such as departments, work centers, warehouses, and projects. The enterprise unit's entities must all belong to the same logistic company, but a logistic company can contain multiple enterprise units. An enterprise unit is linked to a single financial company.

When you carry out logistic transactions between enterprise units, the resulting financial transactions are posted to the financial companies to which each enterprise unit is linked. You can define intercompany trade relationships between enterprise units to determine the terms for internal trade between these units. To use invoicing and pricing between enterprise units, you must link the enterprise units to internal business partners.

You can use enterprise units to perform separate financial accounting for parts of your business. For example, you can define enterprise units for separate parts of your organization that belong to one logistic company, but that are located in different countries. The accounting of each enterprise unit is performed in each country's national currency, and in the financial company linked to the enterprise unit.

financial warehouse

A warehouse with warehouse type **Financial**. A financial warehouse is used to show the inventory levels and enable financial processing of owned inventory that is actually stored in a physical, that is, "real," warehouse belonging to another business unit or branch office within the same organization. The owning unit and the unit storing the inventory have their own p & l accountability.

fixed location

A location that is assigned to a specific item. If you link a location to an item, the item is always stored in that location. A fixed location can contain different items.

handling unit

A uniquely identifiable physical unit that consists of packaging and contents. A handling unit can contain items. A handling unit has a structure of packaging materials used to pack items, or is a part of such a structure.

A handling unit includes the following attributes:

- Identification code
- Packaging item (optional)
- Quantity of packaging items (optional)

If you link an item to a handling unit, the item is packed by means of the handling unit. The packaging item refers to the type of container or other packing material of which the handling unit consists. For example, by defining a packaging item such as Wooden Crate for a handling unit, you specify that the handling unit is a wooden crate.

See: handling unit structure

inbound lead time

The time interval between the arrival of the items and the actual storage in the warehouse.

inspection location

A type of inventory location exclusively designated to store items that are eligible for inspection upon receipt.

After the items have passed inspection, they are transferred to:

- A normal location if they are approved.
- A quarantine location if they are rejected.

Goods in an inspection location are always considered to be on-hold inventory.

See: inspection location, quarantine location, inventory on hold

inventory transaction

Any change in the inventory records.

inventory valuation method

A method to calculate the inventory value.

The inventory is valued at either its standard cost or its actual receipt price. Because inventory value can change with time, the age of inventory needs to be noted. In LN, the following inventory valuation methods are available:

Valuation Method

item group

A group of items with similar characteristics. Each item belongs to a particular item group. The item group is used in combination with the item type to set up item defaults.

location

A distinct place in a warehouse where goods are stored.

A warehouse can be divided into locations to manage the available space, and to locate the stored goods. Storage conditions and blocks can be applied to individual locations.

outbound lead time

The time interval between taking the items out of the warehouse and the departure of the carrier on which the items are placed.

packaging item

The containers or supports that are used to hold and move goods within manufacturing, distribution processes, and, specifically, within the warehouse. For example: boxes, pallets.

Pay on Use

See: *consigned (p. 34)*

pick location

The inventory location designated for order picking purposes. A pick location is mainly used for the outbound of small quantities and/or containers that can be replenished by bulk locations.

See: bulk location

planning cluster

An object used to group warehouses for which the inbound and outbound flow of goods and materials is planned collectively. For this purpose, the demand and supply of the warehouses of the planning cluster is aggregated. Within a planning cluster one supply source is used, such as production, purchasing or distribution.

If multisite is implemented, a planning cluster must include one or more sites. The site or sites include the warehouses for which the planning processes are performed.

quarantine location

A type of warehouse location in which goods initially rejected during warehousing inspection or production are stored for further examination to determine their disposition.

receiving location

The location in which the received goods are placed while they await the generation of an inbound advice.

See: inbound advice

replenishment matrix

The relations that define the replenishment of items from bulk locations or bulk zones to pick locations or pick zones in a warehouse.

serialized item

A physical occurrence of a standard item that is given a unique lifetime serial number. This enables tracking of the individual item throughout its lifetime, for example, through the design, production, testing, installation, and maintenance phases. A serialized item can consist of other serialized components.

Examples of serialized items are cars (Vehicle Identification Number), airplanes (tail numbers), PCs, and other electronic equipment (serial numbers).

shop floor warehouse

A warehouse that stores intermediate inventory in order to supply work centers. A shop floor warehouse is linked to an individual work cell, an assembly line, or one or more work centers. A shop floor warehouse can be supplied with goods using replenishment orders, or by pull-based material supply.

The pull-based material supply methods are:

- **Order Controlled/Batch** (only applicable in Assembly Control).
- **Order Controlled/SILS** (only applicable in Assembly Control).
- **Order Controlled/Single** (only applicable in Job Shop Control).
- **KANBAN**.
- **Time-Phased Order Point**.

The items stored in the shop-floor warehouse are not part of the work in process (WIP). When items leave the shop floor warehouse for use in production, their value is added to the WIP.

staging location

A shipping dock in the warehouse where items are held just before they are placed on any means of transport for shipment.

storage condition

A condition that must be satisfied to store goods. Storage conditions must be linked to item(group)s and to warehouse locations to prevent storage of items at unsuitable locations.

Storage can be performed in two ways:

- By item, by excluding unsuitable locations
- By location, by excluding undesirable items

supply system

A system that is used to coordinate the timely supply of goods to the production lines or assembly lines.

warehouse

A place for storing goods. For each warehouse, you can enter address data and data relating to its type.

work cell

A production unit consisting of one or more work stations in a fixed sequence.

A work cell is used in repetitive manufacturing for the production of a repetitive item.

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